REMARKS

Claim 1 has been amended to incorporate the subject matter of Claims 2, 17 and 19 to better clarify the present invention, and other claims made dependent either directly or indirectly on independent Claim 1. Support for the language "to change a radiation direction of the radiation unit" is found at page 45, lines 1-7. New Claim 39 has been added which is a combination of original Claims 1 and 22.

Claims 25 to 38 have been cancelled and reduces the number of issues involved.

As now amended, Claim 1 is to a radiation treatment apparatus that has a radiation generating unit that emits radiation, a movable member that rotatably supports the radiation generating unit on two rotational axes crossing each other, a guide that moves the movable member carrying the radiation generating unit along an orbit with a predetermined radius about an isocenter such that the emitted radiation crosses at one point, and a support member that rotates the guide about a turning axis extended through the isocenter and arranged in parallel with a plane defined by the orbit. A imager is provided that acquires information of a radiation transmission image of an area including the isocenter, and a control unit is provided which controls two axes of the movable member that rotatably supports the radiation generating unit, to change a radiation direction of the radiation generating unit on the basis of the information acquired by the imager.

New independent Claim 39 is to a radiation treatment apparatus that has a radiation generating unit that emits radiation, a guide that moves the radiation generating unit along an orbit with a predetermined radius about an isocenter such that the emitted radiation crosses at one point,

and a support member that rotates the guide about a turning axis extended through the isocenter and arranged in parallel with a plane defined by the orbit. A microwave source is provided which supplies microwaves to the radiation generating unit via a waveguide, the microwave source being positioned apart from the movable member and the guide.

The arrangements now specified in amended Claim 1 and new Claim 39 are not taught or suggested in the references cited.

Claims 1, 2, 4, 5, 8, 10, 13, 17, 23 and 24 were rejected as anticipated under 35 U.S.C. 102(b) by Setala (U.S. 3,466,439); Claims 1, 7, 9 and 22 as anticipated by LeVeen (U.S. 4,230,129); Claims 3, 6, 12, 14 and 15 as obvious under 35 U.S.C. §103(a) in view of Setala; and Claims 16 and 18-21 as obvious in view of a combination of Setala and Kunieda et al. (U.S. 6,307,914). Reconsideration and removal of those rejections are respectfully requested in view of the present amendments to the claims and the following remarks.

The radiation treatment apparatus disclosed in Setala (3,466,439) comprises a radiation source (16) or X-ray tube (14), an annular stationary frame (12), a rotatable ring (13), a column (18), an X-ray screen as an imager at the opposite side of the X-ray tube, two table top plates (1, 2) and stands (4, 7).

However, the X-ray source 16 is merely moved along the rotatable ring 13. On the other hand, in the radiation treatment apparatus of amended Claim 1 of the present invention, the guide is provided with a movable member which supports the radiation generating unit such that the radiation generation unit is rotational about two axes crossing each other. Furthermore, Setala does

not disclose that the X-ray tube or the radiation source is attached to the rotatable ring 13, and a generating unit and an imager that acquires information of a radiation transmission image of an area including the isocenter are both provided. Nor does Setala disclose, as in new Claim 39, that a microwave source is spaced apart from the movable member and the guide, and supplies microwaves to the radiation generating source through a waveguide.

The radio frequency electromagnetic radiation device having an orbital mount which is disclosed in LeVeen (4,340,129) comprises applicator assemblies as microwave generating unit (36, 38), a circular guide (42, 44) a floor mounted support member (50, 52, 62, 64), an imaging means (70), and a movable patient support (34). To be more specific, the device of LeVeen includes applicator assemblies 36 and 38 which incorporate applicators 14, 16 and 18. The applicator 14, as shown in FIG. 2, includes a pancake type coil 28. However, the device of LeVeen is intended to treat a tumor by warming the tumor with electromagnetic waves, and is therefore entirely different in concept from the apparatus of the present invention.

Furthermore, the device of LeVeen has no member corresponding to the imager of the present invention.

In addition, it should be noted that the Office Action rejects Claim 22 of the present invention as being anticipated by LeVeen. However, Claim 22 recites "microwave source being positioned apart from the movable member and the guide", which is not disclosed or suggested in LeVeen.

The delivery modification system for radiation therapy disclosed in Fitchard et al. (6,385,286), which was applied against now cancelled Claims 33 and 34, comprises a rotating gantry (24), an X-ray therapy source (28), a collimator (38), a verification imaging means (36), a patient couch (12), an X-ray source (26), a linear array detector (32) for an imager, and computer means (40).

However, the Fitchard et al. system does not have a movable member which supports the X-ray therapy source 28, which generates a high energy radiation 34 for therapy, such that the X-ray therapy source 28 is rotatable about two axes crossing each other.

The moving body pursuit irradiating device disclosed in Kunieda et al. (6,307,914) comprises a LINAC (15), a medical treatment base (20), first and second X-ray imaging systems (21a-21f, 22a-22f) and data processing means (24-32). With respect to the device, Kunieda et al. discloses a method of controlling the radiation timing of radiation in order that the radiation is appropriately emitted on a tumor, a method of changing the cross section of a radiation beam by using a multi-leaf collimator, and a method of moving a table on which a patient lies.

However, Kunieda et al. does not disclose the structural feature of the movable member of the invention, which is taught in applicants' amended claims. Nor does it disclose that the microwave source is provided apart from the guide, as in new Claim 39.

In summary, none of the references or their combination disclose that a movable member, which can be moved along a guide, supports a radiation generating unit such that the radiation generating unit is rotatable about two rotation axes crossing each other, or that the radiation

generating unit is driven with respect to the two axes based on image information acquired by an imager as now provided in amended Claim 1. Also the references do not disclose or suggest provision of a microwave source as now specified in new Claim 39.

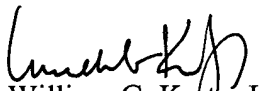
In view of the aforementioned amendments and accompanying remarks, claims 1, 3-16, 18, 20-24 and 39, as amended, are believed to be patentable and in condition for allowance, which action, at an early date, is requested.

If, for any reason, it is felt that this application is not now in condition for allowance, the Examiner is requested to contact the applicants' undersigned attorney at the telephone number indicated below to arrange for an interview to expedite the disposition of this case.

In the event that this paper is not timely filed, the applicants respectfully petition for an appropriate extension of time. Please charge any fees for such an extension of time and any other fees which may be due with respect to this paper, to Deposit Account No. 01-2340.

Respectfully submitted,

ARMSTRONG, KRATZ, QUINTOS,
HANSON & BROOKS, LLP



William G. Kratz, Jr.
Attorney for Applicants
Reg. No. 22,631

WGK/nrp
Atty. Docket No. **040026**
Suite 1000
1725 K Street, N.W.
Washington, D.C. 20006
(202) 659-2930

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